## REMARKS

Summary

In the Office Action, claim 1 is rejected under 35 U.S.C. § 112, second paragraph, claims 1 and 2 are rejected under 35 U.S.C. § 102(e) as being anticipated by Fukamachi '472, and dependent claims 3-7 are objected to as being dependent upon the rejected base claim.

In this Amendment, claims 1 and 2 are amended to overcome the rejections under 35 U.S.C. § 112, second paragraph, and 102(e), whereby claims 1 and 2 now should be allowable, along with the dependent claims 3-7.

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The "wherein" limitation added to claim 1 finds support at page 7, line 25 to page 8, line 6 and page 13, lines 7-10, and Fig. 1; as well as page 20, line 23 to page 21, line 10, and Table 2 at page 21 of the specification.

In addition to the above amendments of claim 1, to describe the high-frequency switching module of the present invention more clearly, Applicant also inserts "and" between the terms "VC2, VC3" in the phrase "by voltage applied from control circuits VC1, VC3" in line 10 of claim 2.

The amended claim 1 overcomes the Examiner's indefiniteness rejection under 35 U.S.C. § 112, second paragraph, set forth in page 2 of the Office Action.

With respect to the Examiner's novelty rejection of claims 1 and 2 under 35 U.S.C. § 102(e) based on Fukamachi (U. S. Patent 7,057,472), Applicant does not agree with the

Examiner's opinion set forth at page 2, the last line 2 up to page 5, line 3 of the Office Action, for the following reasons.

A major novel and unobvious feature of the claimed invention is that the transmitting circuit TX1 of the first transmitting/receiving system in the first switching circuit SW1 is connected to the antenna by applying a positive voltage from the control circuit VC1, and further at the same time by applying a positive voltage from the control circuit VC3 in controlling a switch circuit of the high-frequency switching module for switching a second receiving circuit RX2 and a third receiving circuit RX3 by voltage applied from the control circuit VC3 in the second switching circuit SW2 disposed downstream of the second filter circuit F2, thereby making it possible to obtain the following important feature of the present invention.

Namely, according to a control logic in which a positive voltage is applied from a control circuit VCI of a first switching circuit SW1 and a control circuit VC3 of a second switching circuit SW2 at the time of an EGSM TX transmitting mode as shown in Table 2, diodes (DG1, DG2) constituting the first switching circuit SW 1 and diodes (DD 1, DD2) controlled by one control circuit in the second switching circuit SW2 are **turned on.** Because a diode in an OFF state generally generates harmonic distortion, harmonics can be suppressed by turning on diodes in the second switching circuit as described above (see page 12, lines 5-20, page 21, lines 7-20, and Table 2 at page 21; and Fig. 1 of the specification).

In contrast to the above, Fukamachi (U. S. Patent 7,057,472) discloses a multi-band antenna switch circuit having an electrostatic-surge-removing high pass filter, which includes

a diplexer connected to an antenna terminal for demultiplexing signals of different passing bands, a first and a second switch circuit for switching a high frequency signal and a low frequency signal demultiplexed by the diplexer to a plurality of transmission/reception terminals, a first and a second low pass filter connected to a transmission path between the diplexer and the transmission terminal or between the first and the second switch circuit and the transmission terminal, and a notch filter provided between the diplexer and the first switch circuit or between the diplexer and the second switch circuit (see Abstract; and claim 1 of Fukamachi), whereby the multiband antenna switch circuit can effectively suppress harmonic generation, and because parts of transmission lines and capacitors for the diplexer and the switch circuits are integrally contained in the laminate substrate, wiring between the diplexer and the switch circuits is also formed on a surface of or in the laminate substrate, resulting in decreased wiring loss and easy matching control therebetween (see column 28, lines 60-67 of Fukamachi).

Thus, Fukamachi does not teach or even suggest either the major novel and obvious feature above of the amended claim 1 such that "the transmitting circuit TX1 of the first transmitting/receiving system in the first switching circuit SW1 is connected to the antenna by applying a positive voltage from the control circuit VC1, and further at the same time by applying a positive voltage from the control circuit VC3 in controlling a switch circuit of the high-frequency switching module for switching a second receiving circuit RX2 and a third receiving circuit RX3 by voltage applied from the control circuit V3 in the second switching circuit SW2" of the amended claim 1, or the major novel and unobvious feature of claim 2

such that "the transmitting circuit TX1 of the first transmitting/receiving system is connected to the input/output terminal IP 1 by turning on the first diode DG1, the second diode DG2, the fifth diode DD1 and the sixth diode DD2 (see the last four (4) lines of the characterizing clause of the amended claim 2).

Reviewing the Examiner's opinion based on Fig. 10 of Fukamachi set forth in the Office Action, Applicant respectfully submits that Fukamachi fails to teach not only a **control method** for connecting the transmitting circuit TX 1 of the first transmitting/receiving system in the first switching circuit SW 1 to the antenna by applying a positive voltage from the control circuit VC1, and further at the same time by applying a positive voltage from the control circuit VC3 in controlling a switch circuit of the high-frequency switching module for switching a second receiving circuit RX2 and a third receiving circuit RX3 by voltage applied from said control circuit VC3 (amended claim 1), but also a **high-frequency switching module** capable of connecting the transmitting circuit TX1 of the first transmitting/receiving system to the input/output terminal IP 1 by turning on the first diode DG1, the second diode DG2, the fifth diode DD1 and the sixth diode DD2, and, accordingly, it is clear that the multi-band antenna switch circuit including a diplexer of Fukamachi does not produce the same effects as those in the high-frequency switching module of the claimed invention described in paragraphs [0061] and [0062] at pages 29 and 30 of the specification as follows.

Because the high-frequency switching module and its control method according to the present invention conduct the selection of one mode by voltage applied from control circuits of two switching circuits, it enjoys a large attenuation of harmonics generated by a power

amplifier, and suppresses harmonics that are likely to be generated in the high-frequency switching module. The combination of the antenna switching module of the present invention and the power amplifier connected to a common antenna in and on a laminate provides small, lightweight laminate modules for wireless communications equipments such as cell phones, etc.

The high-frequency switching module and its control method according to the present invention advantageously utilize the impedance-matching characteristics of diode switches, thereby achieving a high attenuation level of harmonics. The combination of the parts of the highfrequency switching module with or without the parts of the high-frequency amplifier in or on one laminate provides a small, lightweight, highly integrated laminate module useful for mobile communications equipments such as cell phones, etc.

Additionally, Table 3 of Fukamachi teaches the relations between the operation mode and supply voltage in an embodiment of the Fukamachi's multi-band antenna switch circuit such that in the EGSM transmission mode, VC1 and VC3 are high (ON state) while VC2 is low (OFF state), and SW connects ANT to Dipl while the line between ANT and Dip2 is open (see column 21, lines 19-21 (Example 6) and Table 3 at column 21 of Fukamachi). Table 3 of Fukamachi may appear to provide a control logic similar to that in Applicant's Table 2 at first glance, but they are completely different.

That is, the control logic shown in Fukamachi's Table 3 is applied to one example of a specific equivalent circuit of the circuit shown in FIG. 16 corresponding to a block diagram showing an antenna switch circuit adapted for a dual band of EGSM and DCS using the

GaAs FET switch as shown in FIG. 15 for Example 6 of Fukamachi, and, accordingly, the control logic of Fukamachi is not applicable to control the first to third transmitting/receiving systems by selectively controlling the ON/OFF states of diodes in the switching circuit by voltage applied not only from the control circuit VC1 but also from the control circuit VC3 as disclosed and claimed by Applicant.

The rejection under 35 U.S.C. § 102(e) requires that Fukamachi disclose, either expressly or inherently, each limitation of each of claims 1 and 2, or in other words, that each of claims 1 and 2 be **readable** on Fukamachi.

Applicant has explained above how claims 1 and 2 are not readable on Fukamachi, whereby Applicant respectfully requests the Examiner to reconsider and withdraw the rejection under 35 U.S.C. § 102(e), and to allow claims 1 and 2 together with the already allowable dependent claims 3-7. However, if for any reason Examiner Tran feels that the application is not now in condition for allowance, the Examiner is respectfully requested to **call the undersigned attorney** to discuss any unresolved issues and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this application, and any required fee for such extension is to be charged to Deposit Account No. 19-4880. The Commissioner is also authorized to charge any additional fees under 37 C.F.R. § 1.16 and/or § 1.17 necessary to keep this application pending in the Patent and Trademark Office or credit any overpayment to said Deposit Account No. 19-4880.

Respectfully submitted,

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